REMARKS

Applicants first thank Examiner Yoon for the helpful interview with applicant's representative on July 7, 2003. Applicants present herein and in the attached Declaration under 37 C.F.R. § 1.132, information which is believed to address the issues discussed in the interview. The declaration attached hereto is unsigned but a signed declaration with be forwarded in due course.

New drawings with appropriate English titles are submitted herewith to replace the French language drawings supplied to the Examiner. Claim 11 was amended to place a comma after "vinyl resins" as suggested in the Office Action. Claim 13 was amended to correct a typographical error. New claim 19 was added directed to the embodiment of Example 4. No new matter was added. Claims 1-14, 16 and 18-19 are now pending.

Claims 1-14, 16 and 18 were rejected under 35 U.S.C. § 112, first and second paragraph, due to objections to the language "heterogeneity on a scale of 0.1 μm as observed under scanning electron microscopy." As discussed during the interview and in the attached declaration, the information provided in the specification and the claims is believed to provide appropriate enablement to those of skill in the art and with SEM. In view thereof, Applicants respectfully request that this rejection be withdrawn.

Claims 9-11, 14, 16 and 18 were rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Conn et al., WO 96/21694. Applicants respectfully traverse this rejection.

Independent claim 16 is directed to an insulating material having improved resistance to thermal ageing, containing 10 to 5000 ppm of a conducting polymer dispersed in or on an insulating polymer and wherein said insulating material shows no heterogeneity on a scale of 0.1 μm, as observed under scanning electron microscopy. Claim 9 is directed to a material obtained by the method according to claims 1 to 8. Claim 10 is a method of using the insulating material obtained by the method of claims 1 to 8 for the manufacture of high and/or very high voltage cables. Claims 11, 14 and 18 are claims directly or indirectly dependent on claim 16.

Conn et al. is directed to an electrically conductive or semi-conductive composite material formed from a plurality of thermoplastic particles that have been pre-coated with a conducting or semiconducting polymer and brought together under conditions of appropriate temperature so the conducting or semiconducting polymer

forms a network through the composite. *Abstract.* Figure 3 of Conn et al. shows that as the amount of conducting polymer increases, the amount of conductivity increases. The attached Declaration under 37 C.F.R. § 1.132 illustrates that with the material of the present invention, the dielectric losses are not increased, and, thus, the conductivity of the insulating polymer does not change. Thus, the material as defined in the claims is an insulating material rather than a conductive or semi-conductive composite as described in Conn et al. The material of Conn et al. cannot be used to insulate a cable, for example, because it would be too conductive.

As described in the attached declaration, the materials defined in the pending claims are homogeneous to the point that the structure obtained is a molecular alloy where all the conjugated polymer/conjugated polymer interactions have been replaced by conjugated polymer/insulating polymer interactions. The quality of mixing used in the process as described in the application to make the insulating material as claimed provides the homogeneity as claimed and allows for the increased lifetime of the material. Further, as noted in the declaration, more detailed measurement of the homogeneity of the prepared materials than those obtained with SEM by using AFM (Atomic Force Microscopy) techniques have since been made. These measurements have not allowed a distinction between the two polymers in the materials.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Conn et al. does not anticipate the rejected claims since it lacks at least the insulating feature of the claimed material and the heterogeneity as claimed, as shown by the declaration. Moreover, a material as claimed would not have been obvious from Conn et al. as there is no suggestion to obtain an insulating material with the claimed features. As shown then, an insulating material as claimed with no heterogeneity on a scale of 0.1 μm is not anticipated by, nor made obvious from the conductive or semi-conductive composites of the Conn et al. publication. In view thereof, Applicants respectfully request that this rejection be withdrawn.

Claims 1-9, 11-14, 16 and 18 were rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Han et al., U.S. Patent No. 5,254,633. Applicants respectfully traverse this rejection.

Han et al. relates to a process for forming an electrically conductive blend of one or more electrically conductive conjugated backbone polymers and one or more non-conductive homopolymers or copolymers. The weight ratio of conjugated

backbone homopolymer or copolymer to non-conductive homopolymer or copolymer may vary widely depending on the application of the blend. In those embodiments where lower electrical conductivity are required, smaller amounts of conjugated backbone homopolymer or copolymer are used and for applications where higher electrical conductivity is required, larger amounts are used. *Column 4, lines 25-41.*

As discussed with respect to Conn et al. and as shown in the attached declaration, the invention as defined in the claims is directed to an insulating material or a method for producing insulating materials wherein the measurement of dielectric losses shows no increase in dielectric losses and thus, the conductivity of the insulating polymer does not change. Han et al. teaches that the conductivity will change with increased amounts of conductive conjugated backbone polymers. In addition, Han et al. specifically claims (claim 2) a material whose conductivity is greater than or equal to 10^{-12} ohm^{-1} cm^{-1}. This material cannot be used to insulate a cable, for example, because it would be too conductive. As noted in the declaration, that the conductivity of the prepared material is not increased with the steps and concentrations of the process of the invention as claimed in the present application cannot be overlooked in the use of the material as an insulator such as for very high voltage cable (see example 4 of the present application).

Even where, as in claim 3, Han et al. claims the conjugated backbone homopolymers or copolymers are in the undoped form and it may remain an insulator, Han et al. still does not describe or suggest the claimed invention since the claims are directed to use of a conducting polymer dispersed in or on an insulating polymer and since the effect of thermal stabilization is achieved only with a heterogeneity as claimed. As noted in the declaration, the materials defined in the pending claims are homogeneous to the point that the structure obtained is a molecular alloy where all the conjugated polymer/conjugated polymer interactions have been replaced by conjugated polymer/insulating polymer interactions. The quality of mixing used in the process as claimed results in no heterogeneity on a scale of 0.1 μm as claimed and allows for the increased lifetime of the material. The declaration further explains that more detailed measurement of the homogeneity of the prepared materials than those obtained with SEM by using AFM techniques have since been made. These measurements have not allowed a distinction between the two polymers in the materials.

As shown then, Han et al. does not disclose each and every element of the invention. For example, Han et al. does not disclose an insulating material and

process as claimed wherein the insulating material shows no heterogeneity on a scale of 0.1 μm. Moreover, no suggestion to obtain such materials or process therefore is provided. Therefore, the invention as defined by the rejected claims is not anticipated by, nor made obvious from the electrically conductive blends of the Han et al. patent. In view thereof, Applicants respectfully request that this rejection be withdrawn.

Further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,
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